Easier electronics by Brett Nortje

Better computer hardware ideas...

If we look at what we have as a computer motherboard and stuff now, what do we want it to be like? where can it go from here - let's try to skip right to the end? that way we will have a nice computer to interact with the new cpu that 'functions like a brain,' or so they say. So, where do we start? let's start with the mother board - that is where you plug in things like ram and graphics cards.

Quote by: **http://en.wikipedia.org/wiki/Motherboard**
A motherboard (sometimes alternatively known as the mainboard, system board, planar board or logic board,[1] or colloquially, a mobo) is the main printed circuit board (PCB) found in computers and other expandable systems. It holds many of the crucial electronic components of the system, such as the central processing unit (CPU) and memory, and provides connectors for other peripherals. Unlike a backplane, a motherboard contains significant sub-systems such as the processor.

Motherboard specifically refers to a PCB with expansion capability and as the name suggests, this board is the "mother" of all components attached to it, which often include sound cards, video cards, network cards, hard drives, or other forms of persistent storage; TV tuner cards, cards providing extra USB or FireWire slots and a variety of other custom components (the term mainboard is applied to devices with a single board and no additional expansions or capability, such as controlling boards in televisions, washing machines and other embedded systems).

So, mother boards are there to plug things into and connect the whole pc together physically. what if we were to do away with motherboards and just let the parts function through vector communication? this will lead to the speeding up of the pc and cpu, as, it will have the speed of light in communication. We could set up tiny lasers from one part to another, and then let the lasers feed the info to the cpu, which, in turn, will send the info to the monitor and receive info from the input items. They could come in a box with holes in it to transfer the information to the places.

Then, we could do without ram, right? that would max the ram out at speed of light transfer rates, using maybe radio waves too?

Monitors and graphics.

If you were to interact with the computer, you need to have some out put from it for you, and that is where speakers and monitors come in. if you were to look into the monitor, it tells you what the parts i described previously will tell you, so, you need a way to get the graphics cards to handle the output you are looking for, which is like a camera, yes? if we could simulate the camera in terms of graphics rendering, then we would be on a long walk to freedom, to coin a phrase!

Now, the monitor interacts with the mother board and graphics cards, and gets processed by the cpu, which is nearly a brain type device, so will work rather quickly compared to other processors. to make a proper graphics card, we need to get a an analogue pane of glass type thing going for the pc. if we were to scan the graphics onto the device of memory we are using, we could get a clear picture as if it were a pane of glass, well, hopefully. this would be better than a television's display, as that also comes in pixels. so, we are basically trying to get a human eye type of resolution - which is a picture from the computer.

Basically, we could do this, as i mentioned in the previous paragraph,

with scanning things from a scanner - all the graphics - onto the cd, dvd, or disk drive of the computer. this means the actual images will be fed to the computer in pictures instead of information of bytes and stuff, and, the pictures could be overlapped like on an overhead projector to make the 'graphics' move.

To get the graphics onto the monitor, we should first observe the monitor and graphic display. let's start with the monitor?

To get the monitor working, we need to use a pane of glass for the protection of the 'display area.' then, we need something that catches light for display content. this means we need something like a sheet of crystal or something to display the images. i think crystal, since the current tech is liquid crystal, so, maybe some of that would be used for this? then, we could shine a laser light onto the 'crystals' and have the image emitted from the crystals behind the glass.

Alternatively, we could try to use overhead projector style displays. this would mean the image gets a light shone from inside it - from the hard drive or memory or whatever, straight onto screen. this could hurt your eyes though...

Then, we need a system to get the graphics from memory onto the screen. this means we need to use pictures in the form of tiny 'tape' or cds, and then shine them onto the monitor. then, we need input from the memory onto the monitor, so, we would need minimal coding. to link the graphic to the memory, so that it can move and change, we would need to id each 'frame.' then, we would need to get the memory to interact with the lasers, so that the graphics can move.

Iding the frames lets us place one on top of another. this means we could shine multiple graphics at once, but, they might overlap and the display might become jaded. then, we could simply make the graphics 3d by adding frames from a pyramid style interface - so that it has height, length and breadth, and then we have our graphics!

Better sounds - life like!

I know the typical way for sounds to be produced by the speakers is measured in bits and pieces, but what if they were to use radio waves, record style readouts, or even tape? if they were to use those, what with the laser speed communication, we could really enjoy our listening experience.

To do this concisely, we need to find a new 'smaller' way to record and produce wav files. these are the files the computer uses to make sounds, of course. so, we need to record the sounds we want to hear onto something analogue, as it beats digital hands down, as, it is beter and smaller. i know for a fact that all sound recordings on a record take up like a tiny micro fraction of it's size, and even cds do this. there is an image file sent to the cd, but, we need to find a way to get mixed photos and sounds onto our 'device.'

The best way to do this would be with separate devices. there could be two cd or dvd inputs, and each could be for either picture or sound. then we could mix them up, identify them into things the lasers can recognize - okay, maybe a little bit of bytes is needed, or counters - and then we could have a totally realistic experience at a tenth of the price.

More on internal parts communication.

Getting all the parts to work together inside the 'box' would be easy if they were connected with lasers or radio waves. this would speed up the bus of the computer, and, basically make it work at the speed of light minus a little time for identification of parts and functions.

If each part were put into a 'glob,' then they could work at the speed of electricity though...

Better ram and memory, is it possible?

Ram is random access memory. it is used to access all information on the storage device such as a cd or disk drive. it is limited, as are all things, so let's try to make this work at the speed of light as well?

Quote by: **http://en.wikipedia.org/wiki/Random-access_memory**
Random-access memory (RAM /ræm/) is a form of computer data storage. A random-access device allows stored data to be accessed directly in any random order. In contrast, other data storage media such as hard disks, CDs, DVDs and magnetic tape, as well as early primary memory types such as drum memory, read and write data only in a predetermined order, consecutively, because of mechanical design limitations. Therefore the time to access a given data location varies significantly depending on its physical location.
Today, random-access memory takes the form of integrated circuits. Strictly speaking, modern types of DRAM are not random access, as data is read in bursts, although the name DRAM / RAM has stuck. However, many types of SRAM, ROM, OTP, and NOR flash are still random access even in a strict sense. RAM is normally associated with volatile types of memory (such as DRAM memory modules), where its stored information is lost if the power is removed. Many other types of non-volatile memory are RAM as well, including most types of ROM and a type of flash memory called NOR-Flash. The first RAM modules to come into the market were created in 1951 and were sold until the late 1960s and early 1970s.

So, it gets to randomly access information. to make it quicker, we could access all the information at once, yes? if we were to hook the whole hard drive up to the other parts, we would need some lasers or radio, and, then, come up with a better way to access memory information. maybe we could try to use electricity? if it were that fast, and electricity is very fast, we could easily make a memory reader that electrifies the whole of the written memory, and then conduct the whole of the information to the other parts?

We need to regulate the amount of electricity that the memory is read - the power allowed into the 'thing.' maybe making a resistor circuit that is tuned to the whole of the 'reader,' but making it super regulated so as not to fry the parts would do it? then again, why not make the parts out of metal? that way we could have the whole thing hooked up the whole time, as metal is a good conductor i would say. then, we could electrify the whole 'box' or case and watch the thing communicate with resistors - super high to not interrupt the information it needs - and relax now, as it should be working easily.

Better computer architecture? The official glob!

Computer architecture is how the computer is put together, like i have already proposed. but, let's look more into it? maybe we can find something else to question?

Quote by: **http://en.wikipedia.org/wiki/Computer_architecture**
In computer science and engineering, computer architecture is a set of disciplines that describes a computer system by specifying its parts and their relations. Computer architecture is different than the architecture of buildings, the latter is a form of visual arts while the former is part of computer sciences. In both instances (building and computer), a complete design has many details, and some details are implied by common practice.

For example, at a high level, computer architecture may be concerned with how the central processing unit (CPU) acts and how it uses computer memory. Some fashionable

(2011) computer architectures include cluster computing and Non-Uniform Memory Access.

Computer architects use computers to design new computers. Emulation software can run programs written in a proposed instruction set. While the design is very easy to change at this stage, compiler designers often collaborate with the architects, suggesting improvements in the instruction set. Modern emulators may measure time in clock cycles: estimate energy consumption in joules, and give realistic estimates of code size in bytes. These affect the convenience of the user, the life of a battery, and the size and expense of the computer's largest physical part: its memory. That is, they help to estimate the value of a computer design.

How about if we were to observe the way the computer gets put together? if the parts were all placed into the same 'glob,' then we could connect them with metal strips - tiny aluminium i remember that being a metal often used for something. so, instead of manufacturing one part at a time, you produce high performance 'globs,' that no customer will notice the difference between losing a little for not being primed to work together, but, that is the thing - it is made to compliment each other!

So, our glob will be put together, with all the cards and hardware that it needs. already, there is a new cpu to compliment the computer, so, it will be lightning fast!

Disk storage and communication.

When it comes to disk storage, this could be improved i bet! if we were to manufacture a new disk type - the analogue disk - we could sue real light to transfer information, and electricity to relay information. but, what about reading information and storing it? maybe we could use a 'nervous system' style computing? we already have a brain!

Quote by: **http://en.wikipedia.org/wiki/Hard_disk_drive**
A hard disk drive (HDD)[note 2] is a data storage device used for storing and retrieving digital information using rapidly rotating disks (platters) coated with magnetic material. An HDD retains its data even when powered off. Data is read in a random-access manner, meaning individual blocks of data can be stored or retrieved in any order rather than sequentially. An HDD consists of one or more rigid ("hard") rapidly rotating disks (platters) with magnetic heads arranged on a moving actuator arm to read and write data to the surfaces.
Introduced by IBM in 1956,[2] HDDs became the dominant secondary storage device for general purpose computers by the early 1960s. Continuously improved, HDDs have maintained this position into the modern era of servers and personal computers. More than 200 companies have produced HDD units, though most current units are manufactured by Seagate, Toshiba and Western Digital. Worldwide revenues for HDD shipments are expected to reach $33 billion in 2013, a decrease of approximately 12% from $37.8 billion in 2012.
The primary characteristics of an HDD are its capacity and performance. Capacity is specified in unit prefixes corresponding to powers of 1000: a 1-terabyte (TB) drive has a capacity of 1,000 gigabytes (GB; where 1 gigabyte = 1 billion bytes). Typically, some of an HDD's capacity is unavailable to the user because it is used by the file system and the computer operating system, and possibly inbuilt redundancy for error correction and recovery. Performance is specified by the time to move the heads to a file (Average Access Time) plus the time it takes for the file to move under its head (average latency, a function of the physical rotational speed in revolutions per minute) and the speed at which the file is transmitted (data rate).

The two most common form factors for modern HDDs are 3.5-inch in desktop computers and 2.5-inch in laptops. HDDs are connected to systems by standard interface cables such as SATA (Serial ATA), USB or SAS (Serial attached SCSI) cables.

As of 2012, the primary competing technology for secondary storage is flash memory in the form of solid-state drives (SSDs). HDDs are expected to remain the dominant medium for secondary storage due to predicted continuing advantages in recording capacity and price per unit of storage;[3][4] but SSDs are replacing HDDs where speed, power consumption and durability are more important considerations than price and capacity.[5][6]

So, to get our nervous system to keep the information, and relay it, we need electricity. maybe copying the chemical computer style would help? i have heard of them before, as some members laid forth it's already working ability. none the less, if we were to use this as our storage system, then we could convey things easily from liquid storage to light, as the 'thing' will use electricity in the nervous system, as it is used in ours. this could easily be transferred through some little objects to become electricity, radio signals, or light to communicate with the rest of it.

But, how do we get the information from the electrical parts - which i suppose might have to be left on maybe - into the laser, radio receiver or transistor? we would need to use, i suppose in the case of light, a way to read electricity with light. this could be done by electromagnet, i remember reading a lot about this a while ago. if there were two electromagnets, on each end, the circuit could communicate at the speed of magnetism, which i suppose is a lot faster than our current means, and then into light with a 'electric laser.'

This electric laser, coined by me, i hope, is used to convey electricity into light. this means that the laser must read from radiation, which can carry information, and then emit the radiation onto the laser, to be shot into the receiver. i remember learning about gamma correction in a game called doom, but do not know much about it...

New computer language for new computer.

Recently i found a neat little package - the awesome language builder, or something. it lets you make your own computer language with binary, and then we can make new roms for the bios of the computer. these start the computer from when you turn it on. then, it reads the rom with the bios on it, and then it loads windwos for those of you that are not familiar with the 'computer slang.'

Basically, all we need to do is make a binary that the computer understands. i think i c++ language, they use objects, which is close to my method of programming python, i have written a whole guide to the most basic of python programming that i will share with you now:

Quote by: **me**
If you want to learn how to program you will find yourself mixed up between C and Java, but, the easiest programming language I find is Python. You can download the components on the web by searching for Python main page or something and downloading the compiler. There are a lot of other functions to
this so bear with me as we learn how to use the programming language commands to write a message for the computer to understand and carry out or
do.

The first thing I want you to understand about programming is that the computer works and thinks like this - [If this, then this.] and [When this, then this]. That is
all a computer understands, as it does what you tell it to do!Input is what you write on the computer. Output is when the computer does what you tell it to.

You may program in windows and usually access your programs in a dos prompt that you can find by clicking on your start menu and finding your way around to the dos prompt. You must

save the file and compile it with a python compiler which you can find on the web under a python compiler search, or get one set up at your computer by someone that has it. Compiling the file you have saved onto your computer is not at all hard.

Input is when you say something that the computer must do as it is written by you. To make the computer just do it like it is written, you need to say it must. This is done by writing [input] and following with a space and normal brackets and inside those brackets the little ' marks, and the text inside all of that, like ('Hello') or something equally creative and exciting... You must also say the action that the computer must take, likef roe example [print] followed by a space at the beginning of the line. So, if you want to make the computer say hello, then the line should look like this: print input ('Hello') up against the margin of the program you are using to to program with. To run a program you need to type the name of the file and then .py at the end without a space.

So, you know how to make the computer say hello to you. Wow... what a fantastical journey! But now that we have mastered programming, why not go for god like powers and make it say hello out of it's own, or, when you want it to? You must write it like this, and please remember that each red writing section starts on a new line; if statement == ('Hello'): referring to the statement that you enter into the dos prompt being hello, tab response == print ('Hello, how do you do?') is the response of the computer to your input and then else: meaning if not this, then this... tab response == print ('Hey?') which is what the program will say if you enter anything else. To quit the program just type quit.

As you can see you can already create a text or word based program that you can mess around with. If you were to try if this then this, like for example if statement == "Mirror mirror on the wall, who is the fairest one of all?" then you could write tab response == ('But you are... of course!') then you could make it
say your name too!

Please remember that you may not write any single letter as a value, but a double or triple and so forth. It is like science where you find single letters have
a operation behind them already, so you cannot use x, y, z, but rather xxx or yy instead of x and y.

If you were to say if statement == "Hello": then tab response == print ('Hello, what is your name?') then you wrote your code as ax == user_input == input ==
output "ax" , making your name equal a value of ax, like a code for giving your name a value for the computer and remembering it as ax of course, and then if
you write, after entering your name, tab response == print ('Hello {input = ax}')and the program will then need to say if statement == "Mirror mirror on the wall,
who is the fairest one of all?" it would then be answering to the value of the ax you have made it remember and given a value to as being ax for all purposes of
the program, and then it will say your name if you write if statement == "Mirror mirror on the wall, who is the fairest one of all?" then tab response == print
('Obviously (ax) is the most ravishing sexual predator in the world... Duh!') you will see your name appear in the next line in that sentence.

Now you can make a real program about [If or when the computer user say this, then the response should be...] not forgetting to press tab of course, or else say
this. Don't forget to use your if statement, because that is where you type things into the computer - input or using the computer. It is text based though and
operates in dos, but it is better than nothing. You must learn the basics before you can learn windows programs...

Remember the golden rules: [if this, then this] and the other one... [when this, then this]

To assign values to the program simply write >>>bx=10, then >>>cx=20 and then if

*statment == "bx+cx" response == print (bx+cx). As you can see it is easy to make these programs with names and numbers being entered inside the brackets for it to get on your screen. You may enter as many values as you like with the >>> stuff before it to show that *** equals this or that value or object. An object is a thing inside the program that has a value or does something.*
You can also say if response == "bx+cx" response == print ('This is your answer. Is there another?') to go a bit further...

Then you can link objects together too! If you say that if output print == bx+cx response == print ('would you like to divide it by 3?') and then you could say if input == ('yes') response == print {bx+cx}/3 and there you have a string or link set up. You should be able to figure out how to use it now and make your program better! Remember each time you make changes you need to save the file and compile it too to use it. You can replace bx or cx with anything that you can think of, and you can set things directly into the program by entering, for example length = 5 which will force feed the program, but this is long and you should rather use bx, or you may say that bx = 3 or whatever. For example you coudl write tax = 14 and use it again and again with the word tax as a value in your sums.

Then there is elif which means else if or or of course, for...in where the stuff you write inside the for in command continues in sequence if activated by a command in the code where it activates the file name of the operation to run, and stops when it is over, or you may say print ('The end') or something.
You may activate any program in sequence, so you could just write the >>>import filename.py and see it run in that sequence. Then while true: will keep something continuing until there is some more input, like s = {input('text : ')} and then if s == 'quit' : followed by break and then something like print('text', len{s}}
where that len bit means load, if you have entered it, then print {'done'} to end the program. This will keep the program making responses of if this then this until you type quit to end it. This is called looping and breaking.

Then you get in, true and false. You set up the set by entering >>>bri = set(['name or value', 'name or value', and so forth until you close the set with }) and then you are ready to set them as true or false, but not yet. You may now say >>> 'name or value' in bri as the set, [remember?] and then in the same line in bri and then in the next line true or false saying if it is true or false. Now if you say it is true it continues using that name or value until it doesn't need to anymore, or it will not accept the statement as true if it is programmed to think of it as false.

*Now to make objects in code you need to write class Robot : it will create a class called Robot object and you can work with these files inside files. Then you should write population = 0 to say which number the robot counts as in the population of the program. The writing def __inti__(self, name) : will give the robot a name referring to itself as self, of course. The self part of the code refers to an object as it is followed by the name, so self.name = name means that the object named what the name value is can be assigned information [or statistics if you are making a game, by saying lives = 3 and so forth], and then you can say if this, then that all over again, but this time with objects. To activate it as a thing in your program you write format(self.name) where format writes it into the programs operations, and then Robot.population += 1 and to see when the robot is working or active you may write def sayHi(self) : print ('text') to say what the sayHi command will print on the screen. Then you can use the droid1 = Robot('name') and what the droid will do in your program, once again with if this then that. In our game example we used lives as a value, so, if you want to say if droid1 == length*4 then response == del live - 1 and finally if live = 0 del droid to lose the game, maybe with a if lives = 0 response == 'Game over" to tell them the game is over and that they are dead, maybe adding if lives = 0 response = exit or soemthing like that, just close the damn program!*

To be able to program graphics or sounds you need to download a graphics program and then install it from the python command prompt. There are simple instructions to make the graphics with and anyone that has done maths, woodwork, or proper graphic design will be able to help you create and save your graphics and sounds to work with the programs you write. These files can be activated from a if this, then display that or something. All you got to do if you want to fly it solo is make a graphic and force feed your program these pictures you have created with elegance and style unto yourself... of course!

There is a lot of other commands that you don't really need to make yourself a game or a accounting program, and they all come with instructions of what they do, but you don't need them really - you, if you understand this section, are now a full on programmer!

Now you can make proper programs with values that change all the time. Remember, [if this, then this]...

The central processing unit - cpu.

A cpu is the thing inside the computer that will process all the instructions it gets from the input, like the keyboard and information from memory, and conduct them for the output to reach you through the monitor, speakers and printer, if any.

Quote by: **http://en.wikipedia.org/wiki/Central_processing_unit**
A central processing unit (CPU), also referred to as a central processor unit,[1] is the hardware within a computer that carries out the instructions of a computer program by performing the basic arithmetical, logical, and input/output operations of the system. The term has been in use in the computer industry at least since the early 1960s.[2] The form, design, and implementation of CPUs have changed over the course of their history, but their fundamental operation remains much the same.

A computer can have more than one CPU; this is called multiprocessing. Some integrated circuits (ICs) can contain multiple CPUs on a single chip; those ICs are called multi-core processors.

Two typical components of a CPU are the arithmetic logic unit (ALU), which performs arithmetic and logical operations, and the control unit (CU), which extracts instructions from memory and decodes and executes them, calling on the ALU when necessary.
Not all computational systems rely on a central processing unit. An array processor or vector processor has multiple parallel computing elements, with no one unit considered the "center". In the distributed computing model, problems are solved by a distributed interconnected set of processors.

The abbreviation CPU is sometimes used incorrectly by people who are not computer specialists to refer to the cased main part of a desktop computer containing the motherboard, processor, disk drives, etc., i.e., not the display monitor or keyboard.
The best way to calculate the processes, would be to use a electric thing of some sort, so that it can process at the sped of electricity, or basically that fast. if the processor was made out of a 'pyramid', and simply reflected for information to be processed, then it could act like a prism does when you shine light through it - you would see a lot of colors from a simple light source. by transmitting these colors inside the prism, it could go into various shades, and then communicate at the speed of light. it would use colors instead of binary or whatever, and then translate in a new 'rom' what they mean.

Of course, the first will be very basic, but, as they advance ones to purple, or

something, and zeroes to yellow, and then have time to do green as 'two,' making programming languages much easier to program too i hope, then we could build a great machine.

New type of circuit.

There exists three types of circuits, namely analog, digital and mixed. if we were to make a better circuit, we would definitely make a way for the progress of things.

I suggest we try to make a circuit out of not on or off switches, but to be more precise, a circuit would be better with more modes. if they were able to be set at on, off, waiting and contingency types, then they would go a lot further! this requires some more explaining...

If the circuit was to be set to a contingency, it could go off automatically after another connection is made. this means, that the circuits will specialize in working after others, and with others. hell, we could set them to work before or after others as set forth by the circuit board.

But, maybe there is an even better way to do this? we could use electrons to connect for us instead of wires, yes? if we were to set the electrons to have their protons to 'direct traffic,' then we would be able to make it faster and more reliable.

If the electrons were set to make a new atom out of the old two, then this could be a connection. splitting atoms is like harder though, so, i suggest we use plasma to cut them down or in half again.

Diodes and droplets.

Quote by: **http://en.wikipedia.org/wiki/Electronic_component#Diodes**
Conduct electricity easily in one direction, among more specific behaviors.
So, this type of component will send electricity in only one direction at a time. this means that it connects and sends the electrons in the specified way. of course, with there being a switch to tell it to send what where, there needs to be a new innovation made here, if you ask me...

Now, to send the electricity in more then one direction at once, there needs to be more switches. if there are more switches though, they will just be more circuits, so, if you were to try to use one circuit instead of a whole lot, then it would be easier to do, but not cheaper for a long time. that said, is there anything wrong with using a diode? well, let's see if we can improve on it?

If you were to have a two way diode, you could have half the diodes, yes? if you were to have a two way diode, you would have a typical 'circuit connection' that would be like the ones on electric circuits in houses, if you know what i mean... of course, the way the diode conducts electricity is like a resistor, so we could just use resistors, which are cheaper, but we want to improve the circuit!

So, if we were to have a 'multi diode' or 'multiple resistor' we could squash more things onto the circuit. if the diodes were smaller, this could be done, but this research is expensive, so let's try to just mutilate the diode? then, the diode will have to be more useful, and will have to make multiple connections of either way in an instant or faster. of course, this is possible, as the diode, or if we throw this out we could use resistors, and then make the multiple connections either way. if the connection was given various frequencies, it could send multiple messages at a time and get them interpreted by the 'message collector,' yes? or,

of course, they could group the message into like a 'droplet' that carries the message to the other end ahead of other droplets.

Now, to get the droplets to form, we need to use protons to 'encase th droplet.' or something that is opposite of electrons, like anti electrons. then we can send multiple messages over one diode or resistor.

Rectifiers.

Quote by: **http://en.wikipedia.org/wiki/Rectifier**
A rectifier is an electrical device that converts alternating current (AC), which periodically reverses direction, to direct current (DC), which flows in only one direction. The process is known as rectification. Physically, rectifiers take a number of forms, including vacuum tube diodes, mercury-arc valves, copper and selenium oxide rectifiers, semiconductor diodes, silicon-controlled rectifiers and other silicon-based semiconductor switches. Historically, even synchronous electromechanical switches and motors have been used. Early radio receivers, called crystal radios, used a "cat's whisker" of fine wire pressing on a crystal of galena (lead sulfide) to serve as a point-contact rectifier or "crystal detector".

Rectifiers have many uses, but are often found serving as components of DC power supplies and high-voltage direct current power transmission systems. Rectification may serve in roles other than to generate direct current for use as a source of power. As noted, detectors of radio signals serve as rectifiers. In gas heating systems flame rectification is used to detect presence of flame.

Because of the alternating nature of the input AC sine wave, the process of rectification alone produces a DC current that, though unidirectional, consists of pulses of current. Many applications of rectifiers, such as power supplies for radio, television and computer equipment, require a steady constant DC current (as would be produced by a battery). In these applications the output of the rectifier is smoothed by an electronic filter to produce a steady current.

A more complex circuitry device that performs the opposite function, converting DC to AC, is called an inverter.

This type of thingy is there to convert power types. if the power type is supposed to stop overheating, then they could just, instead of using metal which is a conductor, use o4 which is oxygen four, which is a conductor and will not overheat as easily. of course, this sounds expensive, so, they should rather use chemicals to convey the signal. this would mean, instead of using metal parts, they could use some sort of liquid chemical stuff.

But, that is not the issue here, rather how to 'convey power types.' what would happen if we were to send out power all over the circuit? they would all turn on and off, but, would it be random? setting the circuit so it is not random, but rather organized, would remove the need for rectifiers. say you have three switches? which one will go on or off? due to determinism, nothing is random, so finding out which ones go on first, and making a sequence, would eliminate a lot of things on the circuit.

Thermoelectric cooling.

Quote by: **http://en.wikipedia.org/wiki/Peltier_cooler**
Thermoelectric cooling uses the Peltier effect to create a heat flux between the junction of two different types of materials. A Peltier cooler, heater, or thermoelectric heat pump is a solid-state active heat pump which transfers heat from one side of the device to the other, with consumption of electrical energy, depending on the direction of the current. Such an instrument is also called a Peltier device, Peltier heat pump, solid state refrigerator, or

thermoelectric cooler (TEC). They can be used either for heating or for cooling (refrigeration),[1] although in practice the main application is cooling. It can also be used as a temperature controller that either heats or cools.[2]

This technology is far less commonly applied to refrigeration than vapor-compression refrigeration is. The main advantages of a Peltier cooler (compared to a vapor-compression refrigerator) are its lack of moving parts or circulating liquid, near-infinite life and invulnerability to potential leaks, and its small size and flexible shape (form factor). Its main disadvantage is high cost and poor power efficiency. Many researchers and companies are trying to develop Peltier coolers that are both cheap and efficient. (See Thermoelectric materials.)

A Peltier cooler can also be used as a thermoelectric generator. When operated as a cooler, a voltage is applied across the device, and as a result, a difference in temperature will build up between the two sides.[3] When operated as a generator, one side of the device is heated to a temperature greater than the other side, and as a result, a difference in voltage will build up between the two sides (the Seebeck effect). However, a well-designed Peltier cooler will be a mediocre thermoelectric generator and vice-versa, due to different design and packaging requirements.

I have an idea - how about send the heat out into 'limbo?' if we were to use magnets or electromagnetism, we could send the heat between two points, and watch it go away. if we were to put a small electromagnet at the right place, we could send it out of the appliance, yes?

Quote by: **http://en.wikipedia.org/wiki/Transistors**
A transistor is a semiconductor device used to amplify and switch electronic signals and electrical power. It is composed of semiconductor material with at least three terminals for connection to an external circuit. A voltage or current applied to one pair of the transistor's terminals changes the current through another pair of terminals. Because the controlled (output) power can be higher than the controlling (input) power, a transistor can amplify a signal. Today, some transistors are packaged individually, but many more are found embedded in integrated circuits.

The transistor is the fundamental building block of modern electronic devices, and is ubiquitous in modern electronic systems. Following its development in 1947 by John Bardeen, Walter Brattain, and William Shockley, the transistor revolutionized the field of electronics, and paved the way for smaller and cheaper radios, calculators, and computers, among other things. The transistor is on the list of IEEE milestones in electronics, and the inventors were jointly awarded the 1956 Nobel Prize in Physics for their achievement.
So, now we know what transistors do. basically, they come in two types; switch and amplifier. let's look at the switches first?

Transistor as a switch.

Transistors are commonly used as electronic switches, both for high-power applications such as switched-mode power supplies and for low-power applications such as logic gates.

In a grounded-emitter transistor circuit, such as the light-switch circuit shown, as the base voltage rises, the emitter and collector currents rise exponentially. The collector voltage drops because of reduced resistance from collector to emitter. If the voltage difference between the collector and emitter were zero (or near zero), the collector current would be limited only by the load resistance (light bulb) and the supply voltage. This is called saturation because current is flowing from collector to emitter freely. When saturated, the switch is said to be on.[29]

Providing sufficient base drive current is a key problem in the use of bipolar transistors as

switches. The transistor provides current gain, allowing a relatively large current in the collector to be switched by a much smaller current into the base terminal. The ratio of these currents varies depending on the type of transistor, and even for a particular type, varies depending on the collector current. In the example light-switch circuit shown, the resistor is chosen to provide enough base current to ensure the transistor will be saturated.

In any switching circuit, values of input voltage would be chosen such that the output is either completely off,[30] or completely on. The transistor is acting as a switch, and this type of operation is common in digital circuits where only "on" and "off" values are relevant.
So, i guess the main problem here is finding a way to get the changes more easy to work with, so as to say that changes would be better resisted and reassigned. this would mean that they could handle more power coming through them, but, the main draw back i see is that it is only a switch that goes on or off. if it went to colors, or colors and all shades in between, the switch could change for the 'use.' but, that is hard to do with a switch, so, instead of being on or off, it could be set to conductor or off, which is basically what it does. if the switch could be set to 'skip' it could be on and skip the 'node' where it is. that would mean that circuits could run in a smaller area, no?

Now, to set it to skip, it would have to have two lines running through the switch, where one is connected to the 'device' and the other runs parallel to it.

Transistor as an amplifier

The common-emitter amplifier is designed so that a small change in voltage (Vin) changes the small current through the base of the transistor; the transistor's current amplification combined with the properties of the circuit mean that small swings in Vin produce large changes in Vout.

Various configurations of single transistor amplifier are possible, with some providing current gain, some voltage gain, and some both.

From mobile phones to televisions, vast numbers of products include amplifiers for sound reproduction, radio transmission, and signal processing. The first discrete-transistor audio amplifiers barely supplied a few hundred milliwatts, but power and audio fidelity gradually increased as better transistors became available and amplifier architecture evolved.

Modern transistor audio amplifiers of up to a few hundred watts are common and relatively inexpensive.
So, now we understand the transistors, but, there are a few problems with them...

Limitations

Silicon transistors can age and fail.[31]

High-power, high-frequency operation, such as that used in over-the-air television broadcasting, is better achieved in vacuum tubes due to improved electron mobility in a vacuum.

Solid-state devices are more vulnerable to electrostatic discharge in handling and operation

A vacuum tube momentarily overloaded will just get a little hotter; solid-state devices have less mass to absorb the heat due to overloads, in proportion to their rating

Sensitivity to radiation and cosmic rays (special radiation-hardened chips are used for spacecraft devices).

Vacuum tubes create a distortion, the so-called tube sound, that some people find to be more tolerable to the ear.[32]

Silicon transistors can age and fail, so maybe we need a new material? maybe if we were to use silicon 4, which would be like silicone compounded onto itself four times would be better?

Radio signals could be better sent if they were in transistor vacuums. this would mean finding the best of both for the new device, or, just taking a bit from here or there.

To insulate the transistor they need to use nitrogen 4 or helium 4, as that is a non conductor.

Being made out of advanced silicon will see the transistor overheat less, or, nitrogen or helium 4.

We need something immune to radiation. gamma rays are the only ones to worry about, so, if we were to observe that the material used must resist gamma rays, we would need to use something like a mirror or something that reflects the rays back out, like crystal or diamonds or something, or, maybe there is no such material? what reflects gamma rays? i would suggest they try to use the heaviest element on the table, or, even make up new ones until they find something that will repel the orbitals in the gamma rays.

For distortion, maybe we should spread the transistor over a bigger area?

Integrated analog circuits.

Quote by: **http://en.wikipedia.org/wiki/Analog_circuit**

An analogue signal uses some attribute of the medium to convey the signal's information. For example, an aneroid barometer uses the angular position of a needle as the signal to convey the information of changes in atmospheric pressure.[2] Electrical signals may represent information by changing their voltage, current, frequency, or total charge. Information is converted from some other physical form (such as sound, light, temperature, pressure, position) to an electrical signal by a transducer which converts one type of energy into another (e.g. a microphone).[3]

The signals take any value from a given range, and each unique signal value represents different information. Any change in the signal is meaningful, and each level of the signal represents a different level of the phenomenon that it represents. For example, suppose the signal is being used to represent temperature, with one volt representing one degree Celsius. In such a system 10 volts would represent 10 degrees, and 10.1 volts would represent 10.1 degrees.

Another method of conveying an analogue signal is to use modulation. In this, some base carrier signal has one of its properties altered: amplitude modulation (AM) involves altering the amplitude of a sinusoidal voltage waveform by the source information, frequency modulation (FM) changes the frequency. Other techniques, such as phase modulation or changing the phase of the carrier signal, are also used.[4]

In an analogue sound recording, the variation in pressure of a sound striking a microphone creates a corresponding variation in the current passing through it or voltage across it. An increase in the volume of the sound causes the fluctuation of the current or voltage to increase proportionally while keeping the same waveform or shape.

Mechanical, pneumatic, hydraulic and other systems may also use analogue signals.

With this type of 'circuit' it is a problem with the noise it generates. there are, as you may know, many different things you can use the analogue circuit for, so eliminating the noise would be good.

To get rid of the noise is hard, as the analog circuit is very sensitive and broad with it's input and output. so, we need to filter it out. i used two circuits for electronic voice phenomenon, with one carrying the noise and the signal and the other carrying the noise. then, just filter what they both hear out.

New programming for sci unit.

If you followed this thread and the engineering challenge thread, you will know i came up with a new sci unit instead of processor. this is superior and will deliver more speed to the computer, as it works with colors instead of on off switches. the problem is that the language is programmed to go through the on off switches or binary. this needs to stop!

So, we need to find a processing procedure that does not go on or off. if it is colors, they will turn various things on or off. but what else can there be? i know this is how the computer makes connections between various parts to go through or up or down the circuit board, but i am still sure we can improve on this.

Now, to get around binary, we need to put actual parts on or off. if the color blue comes through, it could go through a 'prism' and the prism could shine that light through the whole computer and activate things that wait for blue. this would still be on and off though, to a point, so what else can there be?

How about they all stay on, as in on or off switch, and they relay the message from part to part? this requires a new language!

So, if the computer were to interact like a human cellular system, it could call for chemicals maybe? of course, let's see if we can do it without chemicals? if the system was to send a message - the message being binary - to the other parts of the computer, it would be able to decode the binary system. this is like morse code if you ask me... and it would be understood the same way.

Or, we could ditch binary in favor of packets of information. this would mean, [1] laser, [2] color, [3] prism, [4] message, [5] activate? then we could program symbols and actual language into the beam of light and then see it activate or stimulate certain parts of the computer.

Of course, we still need to program the circuit or processor and various other parts of the machine. if the 'message' was to turn on or off, then the new message needs to be in actual code to various parts of the unit. if we used colors for every symbol and character, we could see the language go way past the normal on and off. then, we could make the processor and circuit board into a fully functioning language all to it's own.

Now, to get the symbols into the unit, we code each character with a color. there are 256 normal colors in windows, but there are millions of colors out there with shades in between. so, the unit sends a symbol through the prism, and the prism sends the message to every part of the computer. this is done at light speed so is very fast. then, the whole circuit board 'absorbs' the color and instead of turning something on or off, it has the whole thing on at the on off switch of the computer. then, the whole computer reacts to the light, and every part of the computer carries out the 'code.'

Then, the symbols are sent as if they were actual language, but how does the computer understand this? it will understand because the whole circuit board is programmed with a language, so instead of working on or off, it interprets it like a program would.

Telecommunications.

Quote by: **http://en.wikipedia.org/wiki/Telecommunications_engineering**
Telecommunications engineering, or telecom engineering, is an engineering discipline that brings together electrical engineering with computer science to enhance telecommunication systems.[1][2] The work ranges from basic circuit design to strategic mass developments. A telecommunication engineer is responsible for designing and overseeing the installation of telecommunications equipment and facilities, such as complex electronic switching systems, copper wire telephone facilities, and fiber optics. Telecommunication engineering also overlaps heavily with broadcast engineering.

Telecommunication is a diverse field of engineering which is connected to electronics, civil, structural, and electrical engineering. Ultimately, telecom engineers are responsible for providing the method for customers to have telephone and high-speed data services. It helps people who are closely working in political and social fields, as well accounting and project management.

Telecom engineers use a variety of equipment and transport media available from a multitude of manufacturers to design the telecom network infrastructure. The most common media used by wired telecommunications companies today are copper wires, coaxial cable, and fiber optics. Telecommunications engineers use their technical expertise to also provide a range of services and engineering solutions revolving around wireless mode of communication and other information transfer, such as wireless telephony services, radio and satellite communications, internet and broadband technologies.[3]

Telecom engineers are often expected, as most engineers are, to provide the best solution possible for the lowest cost to the company. Most of the work is carried out on a project basis with tight deadlines and well-defined milestones for the delivery of project objectives. Telecommunication engineers are involved across all aspects of service delivery, from carrying out feasibility exercises and determining connectivity to preparing detailed, technical and operational documentation.[3] This often leads to creative solutions to problems that often would have been designed differently without the budget constraints dictated by modern society. In the earlier days of the telecom industry, massive amounts of cable were placed that were never used or have been replaced by modern technology such as fiber optic cable and digital multiplexing techniques.[4]

Telecom engineers are also responsible for overseeing the companies' records of equipment and facility assets. Their work directly impacts assigning appropriate accounting codes for taxes and maintenance purposes, budgeting and overseeing projects.

So, the telecommunications industry is all about circuits and delivering the circuits signal to other areas of the country or world. of course, with the advent of vector communications, it makes the wiring mush easier when it comes communicating over a large area, but, that isn't everything.

So, how do we make a circuit for the telecoms? if it were actually just a switch where things get set from off to on, through the transistors, then this is basic binary, if you ask me. it works at a decent pace, but, recently i found that they get very soft and dulled out over a long area, so how do we get the volume to sit right?

I would say that the more switches it goes through, the more dulled it becomes,

so, we are looking for a way to limit the amount of switching over that happens. this means that we need to get the switching down a lot! we could do this by using 'numeric transistors' that dial numbers themselves, and that would be better than binary, no?

Electromechanics.

Quote by: **http://en.wikipedia.org/wiki/Electromechanical**
In engineering, electromechanics[1][2] combines electrical and mechanical processes and procedures drawn from electrical engineering and mechanical engineering. Electrical engineering in this context also encompasses electronics engineering.

Devices which carry out electrical operations by using moving parts are known as electromechanical. Strictly speaking, a manually operated switch is an electromechanical component, but the term is usually understood to refer to devices such as relays, which allow a voltage or current to control other, isolated voltages and currents by mechanically switching sets of contacts, solenoids, by which a voltage can actuate a moving linkage, vibrators, which convert DC to AC with vibrating sets of contacts, etc.

Before the development of modern electronics, electromechanical devices were widely used in complicated systems subsystems, including electric typewriters, teletypes, very early television systems, and the very early electromechanical digital computers.

So, this is all about making things move. if there is a current, and the current goes over a certain point, the thing moves. this is very simple isn't it? i think that is the basics.

I think to make it better, we should be able to skip certain points or get them all to work together, or, set up a relay, like the quote says. this would mean that the circuits are set up to make the next one work when it is filled with electricity, or, enough electricity goes through the circuit, of course.

Now, to make it cheaper, they should not use electricity! they should use leverage, like was used to build the pyramids. if they wee to use energy coming from a manual thing, where someone pushes a oscillator or something, they could use that energy to make the relay move and complete it's task.

Then again, maybe it is possible to make the whole factory electricity free - all we need to do now is make the lights come on without the help of electricity. this could be done with neon lighting the likes of which glows purple or green or yellow or other things in the dark?

Solenoid.

Quote by: **http://en.wikipedia.org/wiki/Solenoid**
A solenoid (from the French solénoïde, derived in turn from the Greek solen "pipe, channel" + combining form of Greek eidos "form, shape"[1]) is a coil wound into a tightly packed helix. The term was invented by French physicist André-Marie Ampère to designate a helical coil.[2]

In physics, the term refers specifically to a long, thin loop of wire, often wrapped around a metallic core, which produces a uniform magnetic field in a volume of space (where some experiment might be carried out) when an electric current is passed through it. A solenoid is a type of electromagnet when the purpose is to generate a controlled magnetic field. If the purpose of the solenoid is instead to dampen changes in the electric current, a solenoid can be more specifically classified as an inductor rather than an electromagnet. Not all electromagnets and inductors are solenoids; for example, the first electromagnet, invented in 1824, had a horseshoe rather than a cylindrical solenoid shape.

In engineering, the term may also refer to a variety of transducer devices that convert energy into linear motion. The term is also often used to refer to a solenoid valve, which is an integrated device containing an electromechanical solenoid which actuates either a pneumatic or hydraulic valve, or a solenoid switch, which is a specific type of relay that internally uses an electromechanical solenoid to operate an electrical switch; for example, an automobile starter solenoid, or a linear solenoid, which is an electromechanical solenoid.

This is all to do with electromagnetism. if the solenoid carries the electricity or electrons in a field, they can generate other signals off the circuit, so it is like a laser, you could say, i think.

If you were to think about it, it could be a lot more efficient if the signals did not interfere with each other, i am not sure what the status is right now, but i am sure that it would be an improvement.

So, we want to work with orbital clouds. they say, if i remember correctly, that thing with similar amount of electrons are attracted to each other. this means we need to find a mix of either all different cloud values, or all the same, i am not sure which though.

To make all the orbital clouds of the atoms similar, we need to emit just with one frequency, and i am sure that is what they do now, holding the signal together, or...

They could make them all different amounts of orbitals per area to get a clearer picture on a television, if you were to look at it like i do, but i am not saying it is even used for television, but the signal will be clearer. the problem is, the receiver will get different signals and need to decode each one differently. of course, this could be sped up by hard wiring the whole circuit with different receiver types, which would take a little time in the workshop, and pay dividends with the end product.

Modulation.

Quote by: **http://en.wikipedia.org/wiki/Modulation**
In electronics and telecommunications, modulation is the process of varying one or more properties of a periodic waveform, called the carrier signal (high frequency signal), with a modulating signal that typically contains information to be transmitted.

In telecommunications, modulation is the process of conveying a message signal, for example a digital bit stream or an analog audio signal, inside another signal that can be physically transmitted. Modulation of a sine waveform transforms a baseband message signal into a passband signal.

A modulator is a device that performs modulation. A demodulator (sometimes detector or demod) is a device that performs demodulation, the inverse of modulation. A modem (from modulator–demodulator) can perform both operations.

The aim of digital modulation is to transfer a digital bit stream over an analog bandpass channel, for example over the public switched telephone network (where a bandpass filter limits the frequency range to 300–3400 Hz), or over a limited radio frequency band.

The aim of analog modulation is to transfer an analog baseband (or lowpass) signal, for example an audio signal or TV signal, over an analog bandpass channel at a different frequency, for example over a limited radio frequency band or a cable TV network channel.

Analog and digital modulation facilitate frequency division multiplexing (FDM), where several low pass information signals are transferred simultaneously over the same shared physical

medium, using separate passband channels (several different carrier frequencies).

The aim of digital baseband modulation methods, also known as line coding, is to transfer a digital bit stream over a baseband channel, typically a non-filtered copper wire such as a serial bus or a wired local area network.

The aim of pulse modulation methods is to transfer a narrowband analog signal, for example a phone call over a wideband baseband channel or, in some of the schemes, as a bit stream over another digital transmission system.

In music synthesizers, modulation may be used to synthesise waveforms with an extensive overtone spectrum using a small number of oscillators. In this case the carrier frequency is typically in the same order or much lower than the modulating waveform. See for example frequency modulation synthesis or ring modulation synthesis.

This uses binary! binary is a curse! we must improve it or die trying. of course, this could be quite easy, or hard... let's find out!

So, the message is put into the system, converted to binary, sent to the target, and demodulated into characters or voice or signals again. this could be made easier without modulating and demodulating, so, i suggest first, for telecoms, they carry a direct character set. after all, the signal is made on one side and received on the other, we just got to cut out the modulation and demodulation, no?

If the signal is sent straight to the target then there will be no problem. this reminds me of the first telephones - cups and string. the trick is, to get the signal across, it must carry the signal unaltered. this means that we need to set wires instead of transistors into the telecoms, a few wires that are connected by 'numbers.' if you were to dial the phone, and the wires were tapped to the phone numbers, they would connect in a certain way, connect to the telephone line, and then send the connection to the target which also has a 'code.' This would work the same for modems, i suppose, and it is nearly an analogue signal, so will be clearer.

Of course, it is a bit different for computer modems, i should have known. this transmits binary from one computer to the next, then the message is what it should be. today, or a while ago, or into the future if you prefer, we will use direct characters for the message, so, it should be fed over the laser and then sent straight to the computer target or site or whatever. this would require; a cpu that uses lights and colors and lasers and a similar modem that reads lasers and lights and colors on the other side. of course, because this is being done over a computer, it will get a characterized message instead of a silly binary notion.

Microfabrication.

Quote by: **http://en.wikipedia.org/wiki/Microfabrication**
Microfabrication is the process of fabrication of miniature structures of micrometre scales and smaller. Historically, the earliest microfabrication processes were used for integrated circuit fabrication, also known as "semiconductor manufacturing" or "semiconductor device fabrication". In the last two decades microelectromechanical systems (MEMS), microsystems (European usage), micromachines (Japanese terminology) and their subfields, microfluidics/lab-on-a-chip, optical MEMS (also called MOEMS), RF MEMS, PowerMEMS, BioMEMS and their extension into nanoscale (for example NEMS, for nano electro mechanical systems) have re-used, adapted or extended microfabrication methods. Flat-panel displays and solar cells are also using similar techniques.

Miniaturization of various devices presents challenges in many areas of science and

engineering: physics, chemistry, materials science, computer science, ultra-precision engineering, fabrication processes, and equipment design. It is also giving rise to various kinds of interdisciplinary research.[1] The major concepts and principles of microfabrication are microlithography, doping, thin films, etching, bonding, and polishing.

So, they want to make smaller and smaller parts for computers and things like that? i suggest that they build microtools that can be operated by a machine and then mass produced - this would yield great dividends, yes?

Now, to get to the small they could use my layered glasses or whatever they call it to see that small. then, to make it work that small, they could make nano bots to build the machines or transistors.

So, how do they build the nano bots? if they were to use chemistry, i have already outlined how it could work, but let's say i haven't? how else could they do it, and, would i be better? if they were to build a electromagnet that small, then it would be sorted out in a short time. the electromagnet we looked at today, the solenoid, will be ideal, except that it affects only one chemical at a time. this means we need a 'grid' for the electromagnet - the chemicals could all bond to the grid, then emit electron or orbital clouds that attract the right sort of chemicals. this will mass produce the right nano bots.

But, now we need to program the nano bots. how do we do that? if you look at any chemical, it is programmed already to do it's thing, and it will, as, it can do nothing else being purely reactive. we could of course add chemicals to the others, and see what happens, but, we have a detailed guide on what will happen.

If there needs to be more chemistry between each chemical, then we could just add hydrogen atoms to it and see if they make up the numbers. the problem is, it might become very heavy for it's small size, so maybe skipping directly to more orbitals would be a good idea? then, the chemicals will bond better.

So, we want to build a nano bot that does things better, but what do they do so far? if we were to look at it like a chemical, how do we make the chemical solution more usable? if it were that they wanted to make the bot more social, then they should add liquids to it, as gas and solids are not very social, are they? this means they will be using, primarily, the liquids from the table, and, that they are so 'social' they will mix solids together and be good conductors.